

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

COMPLETE LISTING OF CLAIMS:

Claims 1-20 : (Canceled)

Claim 21 : (New) A means for controlling optical amplifier gain, comprising:

- a) a source for generating a gain control signal;
- b) an optical amplifier for receiving at least one optical input signal channel at a first end;
- c) means for providing the gain control signal to the optical amplifier at a second end thereof; and
- d) the source being arranged to generate the gain control signal at a power level that produces stimulated Brillouin scattering in the optical amplifier.

Claim 22 : (New) The means according to claim 21, comprising control means for identifying a change in an input signal and for varying the power level of the gain control signal to compensate for the identified change.

Claim 23 : (New) The means according to claim 22, in which the control means comprises monitor means for monitoring a power of the input signal and for varying the power level of the gain control signal to compensate for changes in the monitored power.

Claim 24 : (New) The means according to claim 22, in which the control means comprises means for obtaining information on the at least one input signal channel from one of an optical supervisory channel and a pilot tone.

Claim 25 : (New) The means according to claim 21, in which the gain control signal falls within a gain bandwidth of the optical amplifier.

Claim 26 : (New) The means according to claim 21, further comprising means for monitoring the power level of the gain control signal.

Claim 27 : (New) The means according to claim 21, in which the amplifier is a Raman amplifier.

Claim 28 : (New) The means according to claim 21, in which the amplifier is a distributed Raman amplifier.

Claim 29 : (New) The means according to claim 21, in which the amplifier is a rare earth doped fiber amplifier.

Claim 30 : (New) A method of controlling optical amplifier gain, comprising the steps of:

- a) introducing at least one optical input signal channel into a first end of an optical amplifier;
- b) generating a gain control signal and introducing the gain control signal at a second end of the optical amplifier; and
- c) generating the gain control signal at a power level that produces stimulated Brillouin scattering in the optical amplifier.

Claim 31 : (New) The method according to claim 30, including the steps of identifying a change in an input signal and varying the gain control signal power level to compensate for the identified change.

Claim 32 : (New) The method according to claim 31, including the step of monitoring a power of the input signal and varying the gain control signal power to compensate for a change in the monitored power.

Claim 33 : (New) The method according to claim 31, including obtaining information at the at least one input signal channel from one of an optical supervisory channel and a pilot tone.

Claim 34 : (New) The method according to claim 30, in which the gain control signal falls within a gain bandwidth of the optical amplifier.

Claim 35 : (New) The method according to claim 30, further including the step of monitoring the power level of the gain control signal.

Claim 36 : (New) The method according to claim 30, in which the amplifier is a Raman amplifier.

Claim 37 : (New) The method according to claim 30, in which the amplifier is a distributed Raman amplifier.

Claim 38 : (New) The method according to claim 30, in which the amplifier is a rare earth doped fiber amplifier.